



## Examples of unacceptable language from the Portland Harbor BERA

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Cc: Elizabeth Allen, Joe Goulet

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History:

This message has been forwarded.

Kristine, Chip,

As requested, here are some examples (a baker's dozen to be exact) of what I (and others) consider to be language unacceptable to EPA in the current draft of the Portland Harbor BERA. I've bolded the unacceptable text along with its location in the BERA, then given an explanation of why I believe it to be unacceptable to EPA. They are somewhat, but not completely randomly selected from the BERA. Page numbers below refer to the clean copy of the BERA.

Note that none of these comments should be construed or interpreted as final EPA comments on the BERA until they are more fully discussed with management.

(b) (6)

**Page ES-4, footnote 4. "Though not a CERCLA COPC, gasoline-range aliphatic hydrocarbons (C10-C12) were evaluated as an uncertainty, have HQ > 10, and also may pose risk to individual lamprey organisms."** This is the first of several examples where the BERA claims that various total petroleum hydrocarbon fractions, even when co-mingled with other chemicals in environmental media such as sediment and surface water, are not CERCLA-related contaminants. We've already discussed this issue internally and are agreed that EPA does not agree with LWG's position on this issue.

**Page ES-2, 2nd bullet on page. "The primary risk of ecologically significant adverse effects on ecological receptors in the Study Area is from four groups of chemical mixtures: polychlorinated biphenyls (PCBs), dioxins and furans, polycyclic aromatic hydrocarbons (PAHs), and total DDx . . ."** It is not within the purview of a risk assessment to provide a subjective ranking of the primary risks, primary not being well defined in the BERA. That job is reserved to the EPA risk managers. The risk assessment establishes whether a risk is present and defines a range or magnitude of the risk. The proper role of the risk assessment is to identify all chemicals, media, and receptors exposed to potentially unacceptable risks, a quantitative discussion of the risks (e.g HQ range between 1.3 and 571), locations where potentially unacceptable risks are found (e.g. highest cadmium in sediment risks are found between river miles 8 and 10, as well as offshore of the Widget Corporation at river mile 5.2), and to describe which receptors are and are not at risk, as well as what portions of the site pose unacceptable risks. It is perfectly acceptable for LWG to discuss strength of evidence for each line of evidence evaluated in the BERA, as well as to discuss the agreement or lack thereof between the risk conclusions of different lines of evidence. It is also acceptable to discuss uncertainties in risk assessment methodologies and conclusions. But those uncertainties must not be used to draw risk management conclusions such as . . .

**Page ES-2, footnote 3: "The likelihood and ecological significance of the potentially unacceptable risk varies across COPCs and LOEs from very low to high. Therefore, the potentially unacceptable risks range from negligible to significant."** The terms very low to high are not defined in terms of risk. It is not the role of the risk assessor to describe a quantified potentially unacceptable risk as 'negligible'. Although I may personally agree with LWG's description of a given identified risk as negligible, it is not my role to make that judgement in the risk assessment. My proper role is to

inform risk managers of the potential risk, its uncertainties, and whether media concentrations exceed thresholds for adverse effects on the BERA assessment endpoints. I will certainly give my opinion when asked by managers about the ecological significance of any particular identified risk, and whether it rises to a level requiring remediation. So will the LWG's risk assessors, which is the primary reason we asked them to place their risk management recommendations from their interpretation of the BERA in a separate risk management recommendations section. But again, the risk management decisions are reserved to EPA's risk managers, not the risk assessors of EPA and the LWG. Risk management recommendations or opinions, including subjective judgements regarding the magnitude and ecological significance of identified risks, should not be in the BERA text.

**Section 5.0, Identification of COPCs, p. 101.** "The screening of COPCs in this BERA was conducted in two tiers as directed by EPA (2008j)." Although correct as written, the statement implies that EPA somehow forced the LWG to perform the screening in two tiers. In fact, EPA's *Ecological Risk Assessment Guidance for Superfund : Process for Designing and Conducting Ecological Risk Assessments , Interim Final* (June 1997) clearly allows for two tiers of screening. The second tier, the refined screen, was optional within the BERA Problem Formulation. Indeed, the LWG chose not to perform some steps identified as refined screens, with no comment other than concurrence from EPA.

**Section 7.6.3, p. 448.** "Of the 53 TZW COPCs with  $HQ \geq 1$ , 15 have  $HQs \leq 10$  and are thus likely to pose negligible risk." No justification is given for calling an  $HQ \leq 10$  as a level posing negligible risk. Indeed, the term "negligible risk" is found 89 times in the draft BERA. While EPA can accept the use of the phrase "negligible risk" as synonymous with "acceptable risk" when describing the situation where the  $HQ \leq 1$ , as is often the case in the BERA, we cannot accept its use in the situation where a  $HQ \geq 1$ . The inappropriate use of the phrases "negligible risk" and "risk is negligible" all need to be removed from the BERA.

**Table 7-46, p. 459, risk conclusions for fish: 4,4'-DDT with a maximum HQ in transition zone water of 160: Conclusion: "Negligible risk"**  
**Rationale for risk conclusion: "Maximum TZW HQ not indicative of ecologically significant risk."** A maximum HQ of 160 in any medium hardly indicates negligible risk. At least the potential is present for unacceptable ecological risk. While we agree with LWG that risks to many pelagic fish species are likely overestimated by the TZW HQ of 160, the potential for unacceptable risks to demersal fish with small home ranges such as sculpin is much higher than acknowledged by the LWG.

**Table 7-46, p. 459, risk conclusions for fish: Total DDx with a maximum HQ in transition zone water of 280: Conclusion: "Negligible risk"**  
**Rationale for risk conclusion: "All LOEs in reasonable agreement."** A maximum HQ of 280 in one medium is not in substantial agreement with maximum HQs of 1.8 and 1.9 in other media, while an HQ of 280 hardly indicates negligible risk. At least the potential is present for unacceptable ecological risk.

**Section 8.3.3.1, p. 559, wildlife risk assessment conclusions.** "The remaining COPCs resulting in  $HQs \geq 1$  (i.e., aluminum, copper, mercury, benzo(a)pyrene, and aldrin) were not found to pose ecologically significant risk to the wildlife receptors evaluated, given the low magnitude of HQ values and the limited spatial extent of the exceedances; these low risks were estimated using conservative assumptions." The term "low risks" used here is another subjective determination of risk magnitude that is not acceptable in the BERA.

**Table 11-1, p. 633 - 634, risks to invertivorous, omnivorous, detritivorous and piscivorous fish. Line of evidence: "Concentrations in surface water compared with state WQS, national AWQC, or effects based values derived from the literature that are protective of fish survival, growth, and reproduction".** COPCs with  $HQs \geq 1$ : "No COPCs with  $HQs \geq 1$ " Any exceedance of an ambient water quality criterion points to potentially unacceptable risks to detritivorous, invertivorous and/or omnivorous fish, thus, the LWG conclusion of no risks to detritivorous fish from COPCs in surface water is incorrect and unacceptable to EPA, as it is not supported by data in the BERA.

**Table 11-1, Footnote B, p. 635. "Risk estimates for total PCBs, 4,4'-DDT, and total DDX for the surface water and TZW LOEs are based on the alternative total PCBs and 4,4'-DDT TRVs for protection of directly exposed aquatic organisms, rather than the selected AWQC-based TRVs"** Risks from these chemicals should be evaluated on the AWQC based TRVs, especially since it is likely that AWQC (or Oregon water quality standards for aquatic life derived from EPA AWQC) will be ARAR's at the site. It is acceptable for LWG to evaluate risks from the second set of aquatic TRVs they derived, as the Problem Formulation sets out EPA's minimum expectations for the BERA, which LWG exceeded in this case. However, they cannot avoid presenting risk conclusions from the primary TRVs in the summary of risks.

**Section 11.3, p. 640, Ecological Risk Conclusions. "this section (11.3) contains statements with qualitative adjectives like "limited" or "moderate" when describing the spatial extent of exposure to a COPC at concentrations yielding HQs  $\geq$  1."** The terms 'limited' and 'moderate' are not defined as far as I can tell. Without such definitions, one is left to infer that the areal extent of potentially unacceptable risks may be smaller than they actually are. More quantitative descriptions of the areal extent of unacceptable risk, such as the surface area or range of river miles of shoreline where unacceptable risks are found gives a much more useful description of risks to EPA risk managers.

**Section 11.3.2, p. 642, PCB risks to fish. "The tissue-residue TRV for total PCBs is conservative because it is based partially on uncertain toxicity data, including field data from contaminated sites where other contaminants were also present "** EPA does not agree with this statement, because the tissue TRV was not based on field data. While one can legitimately argue the meaning of the term 'conservative', EPA believes that the PCB tissue residue-effects data is among the best, least uncertain residue effects data for any chemical.

**Section 11.3.2, p. 642, Risks to fish. "Because TZW exceedances are localized, none of the TZW COPCs is likely to pose risk to Study Area benthic invertebrate or fish populations."** For species with no mobility (e.g. mussels, clams) or very limited mobility and/or home ranges (e.g. most benthic macroinvertebrates, sculpin), a localized area with elevated contaminant concentrations in TZW is likely to pose unacceptable ecological risks to that portion of the population living in the vicinity of the contaminated TZW. To the extent that the areal extent of contaminated TZW to which benthic invertebrates is exposed is unknown due to limited sampling, TZW risks are unknown. And as several TZW contaminants have maximum HQs in excess of 1000, the statement that none of the TZW COPCs is likely to pose risk is simply not supported by the data.

Best regards,

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"For every problem, there is one solution which is simple, neat and wrong"  
- Henry Mencken